

IN THE SPECIFICATION

Please replace the paragraph beginning at page 1, line 6, with the following rewritten paragraph:

The present invention relates to a structure of a cantilever and a manufacturing method thereof, and for example, it relates to a cantilever which is applicable to a scanning ~~capacitance~~ capacitance microscope and a manufacturing method thereof.

Please replace the paragraph beginning at page 1, line 11, with the following rewritten paragraph:

Conventionally, a scanning ~~capacitance~~ capacitance microscope (mentioned as SCM hereinafter) is employed as a device to detect a distribution of an electrostatic ~~capacitance~~ capacitance on a surface of a sample by making a probe part approach and scan the surface of the sample and measuring the electrostatic ~~capacitance~~ capacitance formed between electric charges of the probe part and the surface of the sample. ~~See (for example, refer to FIG. 2 of Japanese Laid-Open Patent Application Laid-Open No. 8-136555 (1996))~~ See (for example, refer to FIG. 2 of Japanese Laid-Open Patent Application Laid-Open No. 8-136555 (1996)).

Please replace the paragraph beginning at page 1, line 17, with the following rewritten paragraph:

With regard to measurement by ~~the~~ an SCM, a conductive cantilever is employed, ~~and for~~ For example, a cantilever ~~that~~ in which conductors such as Pt, CoCr and so on coat an entire surface of a non-doped silicon chip is employed.

Please replace the paragraph beginning at page 1, line 20, with the following rewritten paragraph:

However, with regard to ~~the~~ SCM, measurement is performed employing an electric force which is influenced over a long distance as compared with an atomic force~~[[,]].~~ Thus ~~the thus~~ a surface resolution ~~capaeity~~ capacitance of ~~that the~~ SCM is influenced not only by a microscopic shape at an extreme edge of the probe part set to the cantilever, but also by a macroscopic shape near the edge of that probe part.

Please replace the paragraph beginning at page 1, line 25, with the following rewritten paragraph:

Here, the surface resolution capability is an indication showing a performance of a microscope ~~and so on~~ and ~~[[a]]~~ the value indicating a ~~capaeity~~ capacitance limit that an identification and a detection are possible while separating different two points in a space.

Please replace the paragraph beginning at page 2, line 3, with the following rewritten paragraph:

Then, in a standpoint of the electric force which is a long-distance force (that is to say, in a macroscopic standpoint), it is suggested that ~~the probe part that~~ only one surface of a triangular pyramidal tip of an SCM be coated with a conductor ~~of it having a triangular pyramid shape is coated with the conductor is applied to the probe part of the cantilever of the SCM~~ to control an influence of a part which does not relate to a direct observation of the probe part of the cantilever (for example, "Lecture Manuscripts of 49th Applied Physics

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Relation Joint Lecture Meeting", March 2002, Shonan School Building in Tokai University, pp. 687).

Please replace the paragraph beginning at page 2, line 10, with the following rewritten paragraph:

~~However, in case that~~ When the coating of the conductor is performed on only one surface of the ~~probe part having the triangular pyramid shape~~ triangular pyramidal tip set to the cantilever of the SCM, the surface resolution capability is improved as compared with a case that the coating of the conductor is performed on the entire surface of the triangular pyramid, however, there is a limitation in the improvement of that surface resolution capability.

Please replace the paragraph beginning at page 2, line 17, with the following rewritten paragraph:

It is an object of the present invention to provide a cantilever which enables a further improvement of a surface resolution capability of microscopes such as a SCM ~~and so on~~ and a manufacturing method thereof.

Please replace the paragraph beginning at page 2, line 20, with the following rewritten paragraph:

The present invention relates to a cantilever which has a probe part scanning an observed sample and an electrode part supporting the probe part. According to the present

invention, the probe part constituting the cantilever includes an insulator and a conductive wiring. The insulator has a sharp-pointed solid shape. The conductive wiring is placed on a part of a side surface of the insulator~~[[, one]]~~. One edge of it reaches ~~[[a]]~~ the peak of the solid ~~shape~~ tip and ~~[[an]]~~ the opposite edge of it reaches the electrode part.

Please replace the paragraph beginning at page 3, line 1, with the following rewritten paragraph:

For example, by applying that cantilever to the microscopes such as the SCM ~~and so on~~, an area that the conductor except for an extreme edge part of the probe part relating to a direct measurement faces with the observed sample becomes small, and an influence of the conductor of a part which does not relate to the measurement directly can be controlled. Accordingly, corresponding to that control, a surface resolution capability of the SCM can also be ~~made to improve~~ improved.

Please replace the paragraph beginning at page 3, line 7, with the following rewritten paragraph:

According to the present invention, a manufacturing method of a cantilever includes steps (a) through (f), ~~(b), (c), (d), (e) and (f)~~. The step (a) is a step of forming a hole having a sharp-pointed solid shape in a surface of a substrate so that a peak is formed inside of that substrate. The step (b) is a step of forming a sacrifice film to cover the surface of the substrate and a side surface of the hole having the solid shape. The step (c) is a step of forming a conductive wiring in the side surface part of the hole having the solid shape on the

sacrifice film so that one edge of it reaches a peak of the hole having the solid shape. The step (d) is a step of embedding an insulator having a selective etching rate to the sacrifice film to fill up the hole having the solid shape after the step (c). The step (e) is a step of forming an electrode part to cover an upper surface of the insulator, an opposite edge of the conductive wiring and the sacrifice film. The step (f) is a step of separating the insulator, the conductive wiring and the electrode part from the substrate by etching the sacrifice film after the step (e).

Please replace the paragraph beginning at page 5, line 15, with the following rewritten paragraph:

The probe part 1 is composed of an insulator 1a having a square pyramidal shape or tip and a conductive wiring 1b. The conductive wiring 1b is placed on one surface of the insulator 1a having the square pyramidal ~~shape~~ tip, and placed to reach the electrode part 2 having the platy shape from a peak of that square pyramid through a center part of the one surface. That is to say, it is placed to make a length of the conductive wiring 1b become the shortest.

Please replace the paragraph beginning at page 7, line 25, with the following rewritten paragraph:

Next, by a vacuum deposition, a platinum film (or cantilever, or beam) 18 is formed in a thickness of approximately 5  $\mu\text{m}$  to cover the silicon oxide film 13, the silicon nitride film 17 and the tungsten wiring 16 as shown in FIG. 11. Here, the other material which has a

conductivity is also applicable except for the platinum ~~film~~ cantilever 18.

Please replace the paragraph beginning at page 8, line 4, with the following rewritten paragraph:

Next, a photoresist 19 is applied on the platinum ~~film~~ cantilever 18, and the photoresist 19 is patterned to be a determined shape by a lithography process. An appearance of this patterned photoresist 19 is illustrated in FIG. 12.

Please replace the paragraph beginning at page 8, line 7, with the following rewritten paragraph:

Next, by performing an anisotropy dry etching with using the photoresist 19 patterned to be the determined shape as a mask, as shown in FIG. 13, the platinum ~~film~~ cantilever 18 is patterned to be a shape as the electrode part 2 of the cantilever shown in FIG. 1. Besides, a condition that the photoresist 19 is removed is illustrated in FIG. 13.

Please replace the paragraph beginning at page 8, line 11, with the following rewritten paragraph:

Finally, by immersing the single crystal silicon substrate 11 on the way of manufacturing that each material is formed as shown in FIG. 13 in a hydrofluoric acid solution and performing an etching treatment, the silicon oxide film 13 which is a sacrifice film is removed, and by that removal, the materials formed upward (the tungsten wiring 16, the silicon nitride film 17 and the platinum ~~film~~ cantilever 18) are separated (lifted-off) from

the single crystal silicon substrate 11 as shown in FIG. 14.

Please replace the paragraph beginning at page 7, line 25, with the following rewritten paragraph:

The probe part 1 of the cantilever according to the present invention includes the insulator 1a having the square pyramidal shape or tip and the conductive wiring 1b having a linear shape which is placed only on one surface of that insulator 1a having the square pyramidal shape tip, thus by applying that cantilever to the SCM, the surface resolution capability of the SCM can be ~~made to improve~~ improved furthermore as compared with a case of applying the cantilever that the entire surface of the insulator having the square pyramidal shape tip is coated with the conductor.

Please replace the paragraph beginning at page 9, line 1, with the following rewritten paragraph:

That is to say, an electrostatic ~~capacity~~ capacitance is a long-distance force, thus with regard to a measurement of the electrostatic ~~capacity~~ capacitance by the SCM, it is also under the influence of the conductor of a part which does not relate to the measurement directly (a part except for the extreme edge part of the probe part 1). Moreover, the electrostatic ~~capacity~~ capacitance between the conductor part of the probe part 1 and the sample changes in proportion to an area which they face with each other.

Please replace the paragraph beginning at page 9, line 7, with the following rewritten paragraph:

Accordingly, by reducing the facing area of the conductor except for the extreme edge part of the probe part relating to the direct measurement with the sample, the change of the electrostatic ~~capaeity~~ capacitance described above can be controlled (that is to say, the influence of the conductor of the part which does not relate to the measurement directly can be controlled), and thus the surface resolution capability of the SCM can also be ~~made to improve~~ improved corresponding to that control.

Please replace the paragraph beginning at page 9, line 13, with the following rewritten paragraph:

When applying a contrivance described above to a case of placing the conductor 1b which becomes a measurement part on one surface of the insulator 1a having the square pyramidal ~~shape~~ tip, the facing area of the conductor part which does not relate to the measurement directly with the sample can be reduced more in the case of placing the conductive wiring 1b having the linear shape on one surface such as the present invention than the case that the entire surface of one surface of that insulator 1a is coated with the conductor, and by just that much, the electrostatic capacity between the conductor part which does not relate to the measurement directly and the sample can be ~~made to reduce~~ reduced. Accordingly, corresponding to this, the surface resolution capability of the SCM can also be ~~made to improve~~ improved.



Please replace the paragraph beginning at page 9, line 23, with the following rewritten paragraph:

Moreover, when the one edge of the conductive wiring 1b reaches the peak of the insulator 1a having the square pyramidal ~~shape~~ tip and the opposite edge reaches the electrode part 2, the conductive wiring 1b can be placed with any shape, however, as described above, the length of the conductive wiring 1b can be the shortest by placing it to go through the center part of the one surface of the insulator 1a having the square pyramidal ~~shape~~ tip, and the surface resolution capability can be ~~made to improve~~ improved furthermore.

Please replace the paragraph beginning at page 10, line 5, with the following rewritten paragraph:

Moreover, by reason that the conductive wiring 1b has a linear shape, a mechanical strength becomes weak, however, the conductive wiring 1b is supposed to be placed closely on the surface of the insulator 1a having the square pyramidal ~~shape~~ tip, therefore, it is also possible to control the mechanical strength of that conductive wiring 1b becoming weak.

Please delete the Abstract of the Disclosure on page 14 and replace with the following substitute Abstract of the Disclosure: